United Prairie
FOUNDATION

Multi-State Habitat Development Program Grant Proposal

"Breeding Waterfowl Habitat Conservation"

Louisiana Department of Wildlife and Fisheries

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United Prairie Foundation, Inc., a Federal 501(c)3 public non-profit organization, has as its mission building a better prairie by restoring prairie grassland habitat – the habitat breeding migratory waterfowl depend on for survival. The Foundation is seeking a $35,000 commitment from the Louisiana Department of Wildlife and Fisheries for the development of mixed-grass prairie habitat development plots located in the US Prairie Pothole Region. Existing habitat has been neglected and unmanaged for so long that most prairie habitats are not sustainable.

Founded in 2004, United Prairie continues to grow and is becoming a leader in the field of habitat restoration. The Foundation, through its mission, seeks to restore these neglected habitats and return them to functional grassland-based prairie habitat. In 2004, the Foundation began removing invasive trees from prairie habitats with a chainsaw and donated Bobcat loader. Since that first project in Ransom County, ND, the Foundation has continued to grow and is now working projects in South Dakota, Minnesota and North Dakota. The Foundation has successfully restored thousands of acres on both public and privately owned land. Projects the Foundation conducts range from tree removal through complete restorations including seeding high diverse local eco-type prairie, bringing lost prairies back into production

Partnerships have developed with help from local family farms, five regional United States Fish & Wildlife Service (USFWS) Wetland Management Districts (WMD), Minnesota Department of Natural Resources and North Dakota Game and Fish Department. In the past couple years the Foundation has entered into cooperative management agreements with numerous USFWS Districts to restore neglected low priority properties back into historical correct eco-type prairies. Companies like Scheels, Bobcat, Arctic Cat, Woodland Resort, Evans Oil, Wildlife Forever and others help fund the operation of heavy equipment allowing restored prairie acres to climb.

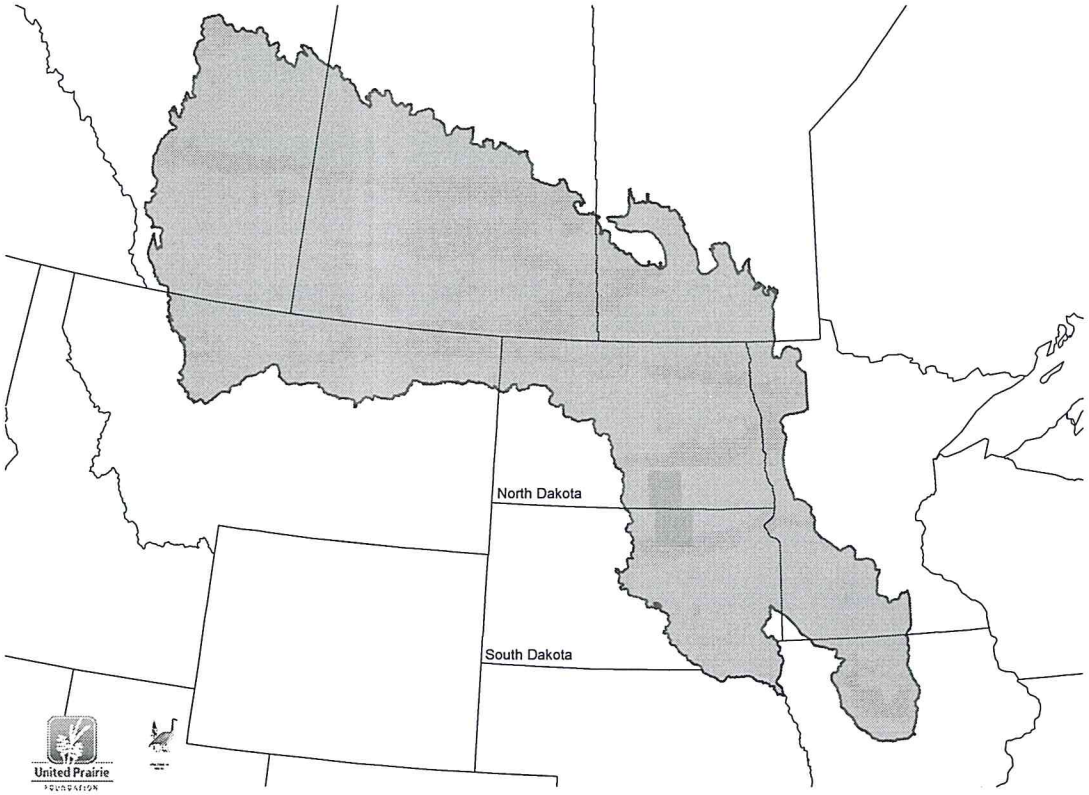
Entering the Foundation's 11th year of mission work restoring breeding waterfowl habitat in three key production states leads to this proposal to expand our mission into the heart of North America's duck producing region. Driven by the science, teaming with great agency biologists and hard work from United Prairie employees with a proven track record of successful projects, the establishment of mixed grass prairie development plots is going to be a huge success.

Multi-State Habitat Development Program

BACKGROUND

Historically, the central Dakota's were an immense area of diverse prairie habitat and wetlands. Today, only remnants of the original prairie remain and these parcels are over-run with invasive, non-indigenous trees, plants and grasses. The fact is, wild natural landscapes are becoming fewer and smaller. Areas/habitats that are set aside for wildlife need to be managed to maximize their productivity of native plants and wildlife. In the Prairie Pothole Region that means properties need to be managed for waterfowl production. This program will go a long way toward truly making the Dakota's a "better place for breeding waterfowl".

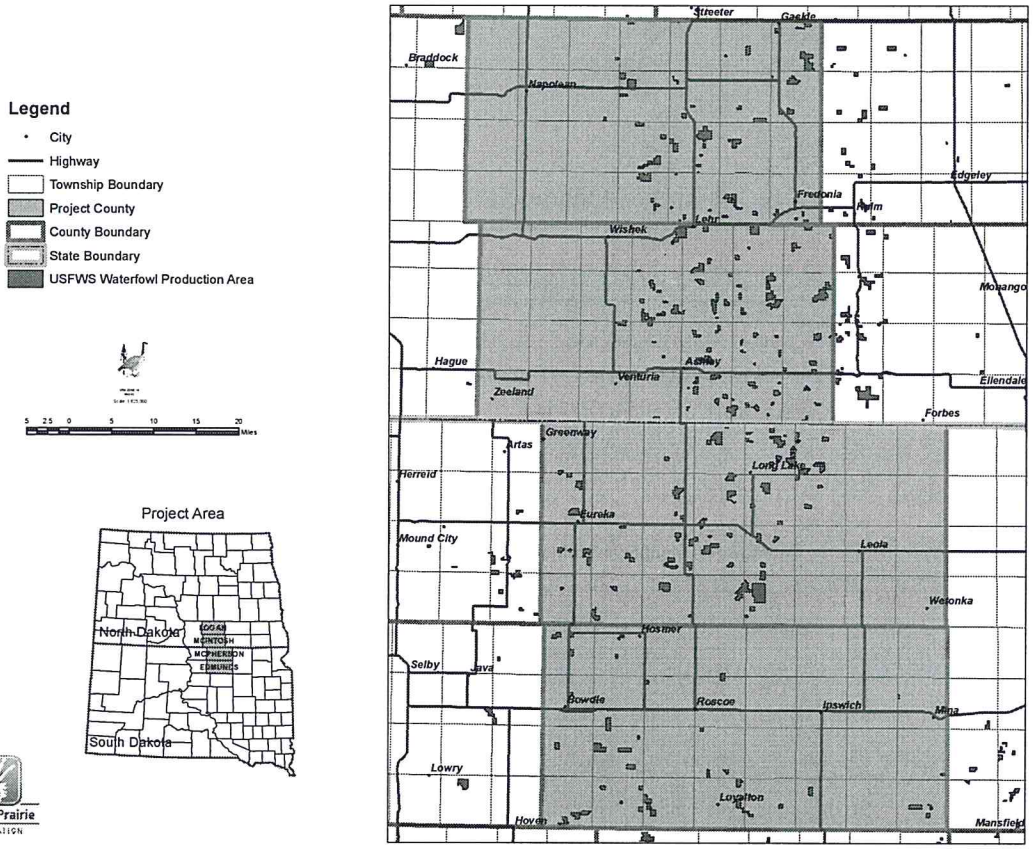
Location of the United Prairie Multi-State Habitat Development Program inthe Prairie Pothole Region



PROGRAM GOAL

The major goal of the Multi-State Habitat Development Program (HDP) is to identify locations of quality native prairie remnants, harvest a diverse mix of prairie seeds and plant development plots. The plots are being seeded in order to create a sustainable source of local eco-type native prairie seeds for use in future restoration efforts of perpetually protected grasslands. The HDP will map and locate sources of eco-type correct prairie for the Missouri Coteau mixed grass prairie. The targeted area attracts the most breeding waterfowl in North America and is located within the Prairie Pothole Region.

Project Area of the United Prairie Multi-State Habitat Development Program



WHY THE NEED?

Current conditions are not looking good for prairie existence. Like the butterflies current situation/status, prairie eco-systems are disappearing rather fast. Establishing quality sources of eco-type correct seed needs to be done now! Preserving the historical American eco-type prairie in the Prairie Pothole Region is what it is about.

The destruction of the prairie began in earnest during the drought of the 1930's. Grasslands got over-grazed, federal agencies and private landowners started planting smooth brome grass and trees to help stop the blowing soil. Little did anyone know how prolific the non-native cool season brome grass would become and create a blanket smothering out native prairie. In addition to the invasion of the brome other exotic noxious weeds would start gaining a foot hold in the native grasslands leading to landowners using herbicides to stop the spread. The unknown consequence was that the herbicides used to kill the noxious weeds also indiscriminately would kill the native forbs a key component of the native grass eco-system. In addition to all the cool season grass, prescribed fire has been reduced which is the needed management tool to beat back the cool season grasses that can dominate a grassland habitat.

At an early May 2015 meeting with Sand Lake NWR/WMD, they thought we would have trouble finding real prairie, but made a commitment to help United Prairie Foundation (UPF). Last summer UPF was asked to attend a meeting in Jamestown, ND with Chase Lake, Arrowwood and Valley City USFWS Wetland Management Districts (WMD) to discuss developing a partnership to help them develop high diverse local eco-type prairie plots. UPF had to decline because of prior commitments which already strain a limited budget and ever expanding on the ground restoration efforts. Currently UPF has a cooperative land management agreement with Sand Lake WMD that has UPF restoring over 500 acres on 3 Waterfowl Production Area properties that will need seeded with local eco-type prairie beginning in spring 2019. This HDP all started from this need for seed and lead to the realization that almost zero real prairie seed existed and no seed dealers selling eco-type correct seed for this region exist. The mixed-grass prairie is so very rare.

UPF has since its inception worked on moving the management plans forward for leading prairie groups such as, the Prairie Pothole Joint Venture, North American Management Plan and more specifically aiding USFWS Wetland Management Districts who manage much of the public prairie land holdings.

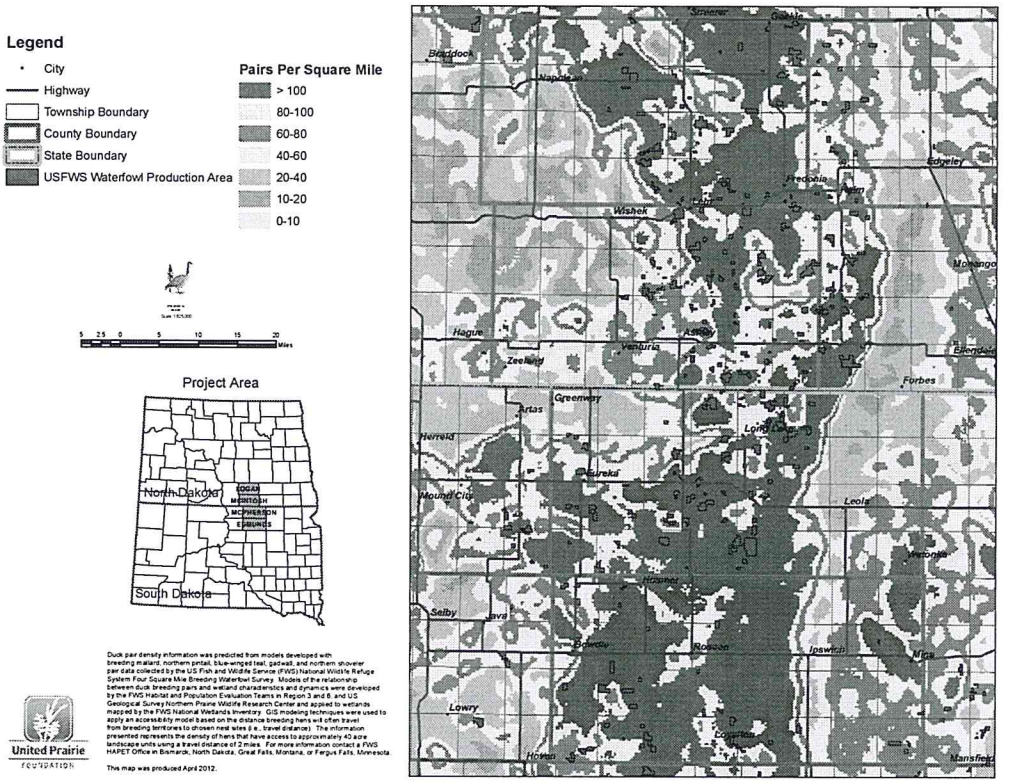
Stated in the current Sand Lake Comprehensive Management Plan released in 2012

1. "However, Service-owned native prairie is badly deteriorated, mainly through extensive invasion by introduced, cool-season grasses. Recent inventory data suggest that relatively intact native herbaceous flora is uncommon on Service-owned land in the Dakotas, with few remaining large tracts dominated by native grasses and forbs (Grant et al. 2009). Current inventory data for the refuge complex (2009) indicate that native grasses and forbs are evident on 20 percent of the native prairie (figure 21)"

2. "It is likely that some native prairie vegetation has already passed a degradation threshold—in other words, restoration of a diverse, native herbaceous flora in such areas is an unrealistic and impractical goal."
3. "Most northern mixed-grass and tallgrass prairie has been destroyed."
4. "A fundamental assumption is that, under current management—which lacks an objective, science-based system of identifying and prioritizing restoration of native prairie tracts—native herbaceous flora would continue to decline and disappear.
5. "Waterfowl habitat protection and restoration are the districts' primary emphases."
6. "Limited funding and management resources are objectively allocated to native prairie tracts according to the potential for that tract to benefit waterfowl and grassland birds. Allocate limited resources to native prairie tracts as discussed in the Native Prairie Restoration Objectives"

Impacting and restoring grasslands takes huge amounts of eco-type correct seed. With the mixed grass native prairie being rare, seed is very difficult to obtain and funding from the Louisiana Department of Wildlife and Fisheries will be instrumental in developing the ground work for development plots that will make large scale prairie restorations possible. Creating the habitat waterfowl need for existence. The location of the projects funded by the Louisiana Department of Wildlife and Fisheries attract large numbers of breeding ducks.

Breeding Waterfowl Pair Upland Accessibility within the Project Area of the United Prairie Multi-State Habitat Development Program



Duck pair density information was predicted from models developed with breeding mallard, northern pintail, blue-winged teal, gadwall, and northern shoveler pair data collected by the US Fish and Wildlife Service (FWS) National Wildlife Refuge System Four Square Mile Breeding Waterfowl Survey. Models of the relationship between duck breeding pairs and wetland characteristics and dynamics were developed by the FWS Habitat and Population Evaluation Teams in Region 3 and 6 and US Geological Survey Northern Prairie Wildlife Research Center and applied to wetlands mapped by the FWS National Wetlands Inventory. GIS modeling techniques were used to apply an accessibility model based on the distance breeding hens will often travel from breeding territories to chosen nest sites (i.e., travel distance). The information presented represents the density of hens that have access to approximately 40 acre landscape units using a travel distance of 2 miles. For more information contact a FWS HAPET Office in Bismarck, North Dakota, Great Falls, Montana, or Fergus Falls, Minnesota.

This map was produced April 2012.

Restoration of central Dakota prairie habitats is needed on an ongoing basis to fight invasiveness and using native eco-type seed on restorations is rarely used because of no seed source. The remaining prairie habitats are very fragmented and many are infested with invasive weeds. As a result, it is not possible to use them as a harvestable seed source. Restoration and development of prairie habitats requires a large quantity of a native prairie seed mix and while it is possible to purchase these seed mixes in the Tallgrass regions to the east, native eco-system correct seed is not available commercially for the mixed grass region. What is needed is a harvestable, renewable source of Prairie seed so that habitat restoration can expand rapidly and cost effectively with historically eco-type correct seed. Programs like the HDP in the Tallgrass prairie region have reduced seed costs for restorations on large prairies from over a $1000 an acre to under $100. This program not only creates real prairie but creates an affordable solution to large acre restoration efforts needed to impact landscape level change.

Grassland prairie habitats are one of the most endangered ecosystems in the world today. The science behind a diverse plant community is well documented. The more diverse the plant community, the more diverse and abundant the wildlife community. Native diversity also makes the plant community less susceptible to invasion by plants such as thistle, smooth brome and Kentucky bluegrass. Clarence Lehman, former director of Cedar Creek Research Center, stated their research indicated at least five additional species of insects are introduced to the plant community with the addition of each plant species. Adding more plants increases seed production which in turn increases the small rodent populations. **The whole idea is to increase the insect, song birds and rodent populations, which in turn provides alternative prey species for predators, which leads to less pressure on such things as breeding waterfowl, pheasants, and deer.** The larger the prey base, the less impact to each individual component of that prey base. Clean water and soil retention are also benefits of a diverse plant community. All aspects of a diverse prairie habitat provide positive scientific outcomes.

Strategies

RESTORATION VISION

We are charged with the responsibility for planting a complex plant community that is attractive to a wide array of wildlife. Our vision is to emulate, to the best of our ability, the historical conditions of the Mixed-Grass Prairie by replicating species composition, structure and function in our restorations.

RESTORATION METHODS

During restoration, a diverse seed mix harvested from local remnant prairies and greater than 50 species in number, is broadcast over the snow in late winter. The proven best seed bed is un-tilled soybean stubble. Soybeans fix nitrogen and provide the nutrients needed for the newly planted prairie. Research supports that broadcast seeding a high diversity mix during the dormant season (fall/winter) typically results in successful restorations with lower percentages of invasive species.

FIELD PREPARATION

Field preparation is minimal. The typical field (under the snow) is untilled soybean stubble. Weather conditions best for snow-seeding include partly to mostly sunny skies with a temperature between 25 and 35 degrees F with winds less than 20 mph and snow cover less than 12 inches. Seeding should cease for the day by 1:00 PM or earlier to allow the sun time to warm the seed during the afternoon. The seed is locked into place by the freezing night-time temperatures and can no longer move laterally. During snow melt, the seed will be pulled into the ground when the top layer of soil is soft. Each seed has its own mechanism to set its own seeding depth for optimized germination. There is no need for further tillage or packing.

The restored newly seeded prairie will be allowed to mature for four years. Prairie plants require at least four years to mature because of their extensive root systems. The length of some prairie plant roots can grow up to twenty-five feet long. Their extensive root systems are what allows them to survive the severe prairie weather and contributes to the high quality soil found on the prairie.

PRESCRIBED FIRE

The key to successful plot management is prescribed fire. Fire will be used every three years and prior to harvesting. Fire also spurs seed development producing as much as three times the seed of unburned land.

SEED HARVEST

Seed harvest will begin once the HDP Plots have matured. Harvest actually occurs over a very wide time frame. Early maturing forbs will get hand harvested in early summer. Partnerships will be formed with area civic groups which educates and involves a large number of interested local citizens in hand harvesting native prairie plant seeds. The grass along with a majority of late season forbs will get combine harvested. Like many agricultural crops, timing of harvest is critical. All of the seed harvested with the combine needs to be put on air immediately to start the drying process. Even the transport trailers have aeration systems which are powered by a generator. If air circulation is not provided the seed will heat up due to high moisture levels. Wet grass starts breaking down killing the viability

of the seed. Once the grasses and forbs have dried the entire seed batch is mixed. The seed mix is then bagged into 40 pound bags and random samples of the seed mix are sent to a lab to be tested.

BENEFITS

The long term benefit of the HDP will be an ever increasing source of native Prairie Pothole Region flora that makes for a diverse ecosystem. Benefits of a quality grassland restoration program are many:

- Soil stabilization
- Long term weed management
- Partnership with local farms
- Creation of a high quality native prairie seed source that can be harvested and used in other projects
- A diverse native grassland adds to the aesthetics of a community whether it is the colors of fall or the blossoms of summer.
- Wildlife such as waterfowl, deer, pheasants, bees and other non-game species thrive
- Two species of butterflies listed as threatened will benefit from the HDP
- Plants native to PPR dominate habitats and support a diverse ecosystem
- Quality prairie can reduce the impact of wildlife on nearby crops while at the same time providing abundant pollinators that can assist agriculture in general.

The purpose of a well-managed high diverse prairie restoration is to keep invasive plants out of a restored prairie eco-system. Native plants root much deeper than invasively introduced species, giving the land much better long term erosion control and cleaner water. The NRCS recognizes diverse native grassland as the habitat most able to reduce runoff and absorb rainfall events.

EXPECTED RESULTS

The seeds generated from the HDP plots will be harvested and used to restore other prairie land. In turn, those seeds will be harvested and used to restore yet more reclaimed prairie. Twenty to thirty years from the original funding of the HDP, the expected result will be many thousands of acres of mixed grass prairie resembling the look pioneers saw when homesteading in the state. Future generations will benefit from the results of this program. Most prairie plants out live trees and like trees take time to mature. Creating programs with end users that continue to grow and create a prairie eco-system is the expected result. Breeding waterfowl habitats will be the big winner as the value of diverse habitats will lead to more secured prairies providing additional grasslands that migratory birds depend on for survival.

THE PLAN AND PARTNERS

Developing a program that will create enough seed to aide in the restoration of the mixed grass prairie on a landscape level will require many interested parties. UPF is spearheading this program and has developed a road map for making the development of landscape level habitat restoration possible. The following steps are being taken to execute the plan.

1. Employ interns working with UPF staff to map remnant prairie along the ND/SD state line. Sand Lake WMD has already partnered on this step and will be providing housing for two interns, providing vehicle fuel and creating maps from gathered waypoints. (NDGF)
2. Harvest identified seed (UPF)
3. Seed into prepared seed bed – land/funding yet to be secured (LDWF)
4. Repeat process in 2016,2017,2018
5. Keep growing the HDP as more harvest locations and funding become available

Partners committed in 2015

1. Sand Lake USFWS Wetland Management District who are providing lodging for interns, fuel for a vehicle used in remnant prairie mapping efforts and creating the maps.
2. North Dakota Game and Fish Department funded $20,000 towards harvest mapping.

With funding secured to begin the program, additional partners will be pursued to leverage and grow the Multi-State Habitat Development Program.

IN CONCLUSION

UPF will:

- hire interns,
- seek out native eco-type prairie seed,
- harvest seed, and
- seed development plots on secured land.

UPF's ability to successfully implement projects and secure land allows for expanded habitat management. The Foundations proven success means very little if any added work load to area land managers. LDWF support of the Multi-State Habitat Development Program would create the boost needed to bring additional partners on board and positively impact even more breeding waterfowl habitat. The attached budget shows a successful plan to build a native eco-type correct prairie seed program.

Multi-State Habitat Development Program Budget

Project Expense	LDWF Request	NDGF Request	Sand Lake USFWS Wetland Management District	United Prairie Foundation
Mapping Wages (1)		17,200		
Mapping Housing (2)			In-kind	1,400
Mapping Equipment (3)	2,000	2,800	1,134	1,059
Mapping Misc. Supplies			In-Kind	500
Mapping Project Costs	2,000	20,000	1,134	2,959
Native Prairie Harvest Wages	13,000			In-Kind
Combine/harvest equipment Trucking Fuel & Maintenance (4)				In-Kind
Grass Storage/ Processing Facility (5)				1,000
Seed Processing (6)				In-Kind
Land Rental (7)	20,000			5,000
Program Mgmt. (8)				In-Kind
Total Project Costs	35,000	20,000	1,134	8,959

1. **Mapping Wages** are for one intern, UPF summer seasonal employee and full-time UPF employee
2. **Mapping Housing** is for UPF employees for duration of mapping project. Sand Lake WMD is providing housing for intern
3. **Mapping Equipment** is vehicles, fuel, insurance and GPS
4. **Combine Harvest Equipment** includes seed stripper, combine, harvested seed transport trucks and necessary support equipment for native seed harvest
5. **Grass Storage and Processing Facility** is a rented warehouse to dry and bag harvested prairie seed
6. **Seed Processing** is seed tests for purity, germination and bagging processed seed
7. **Land Rent** will cost $50 an acre and will be for a period of 10 years
8. **Program Management** will manage prairie development land rental acres for the 10 year program